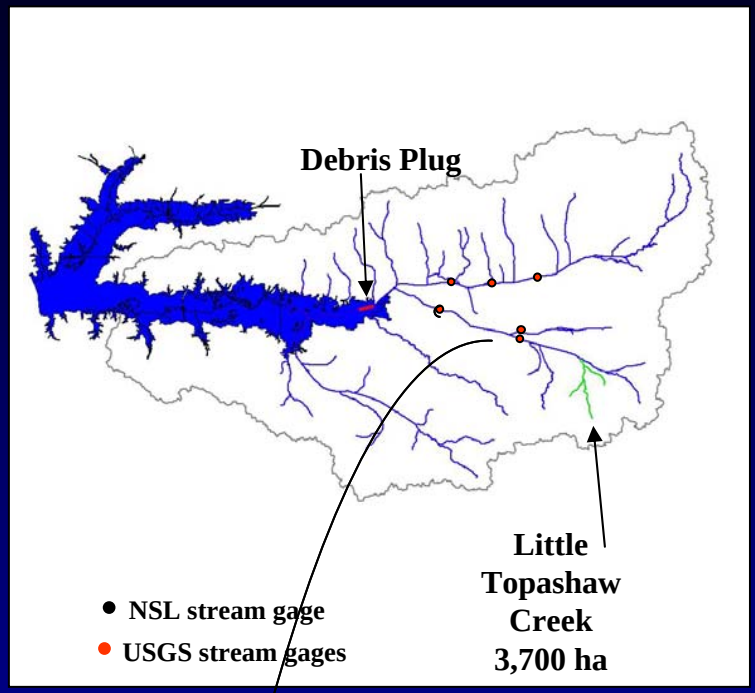
Yalobusha River Watershed

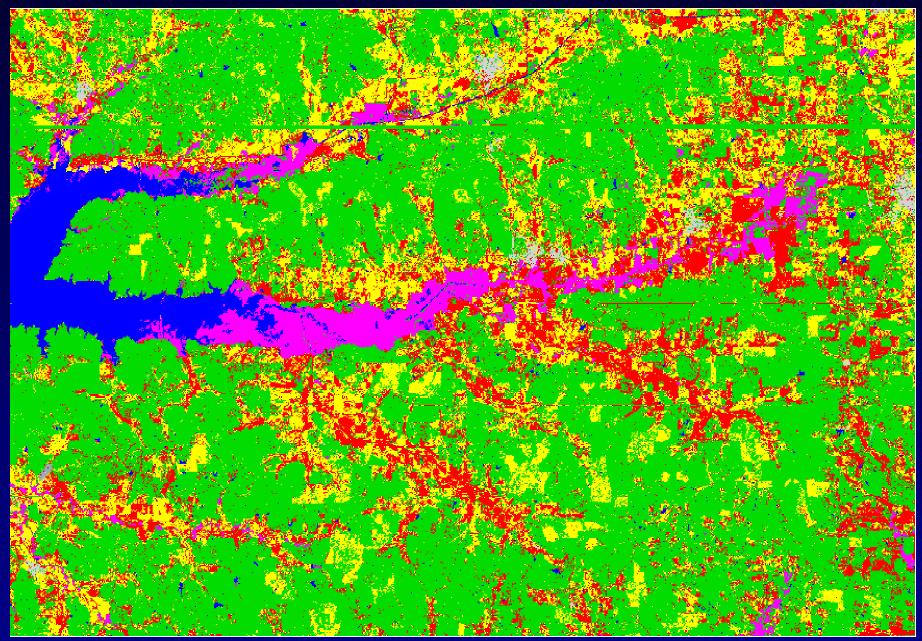
National Sedimentation Laboratory

Oxford, MS

Yalobusha River Watershed



Yalobusha River Watershed



Stream Characteristics

"flashy" hydrology,

Low baseflows and shallow depths,

concentrated surface runoff and

subsurface flows, and

steep banks that are prone to failure.

Yalobusha River Watershed

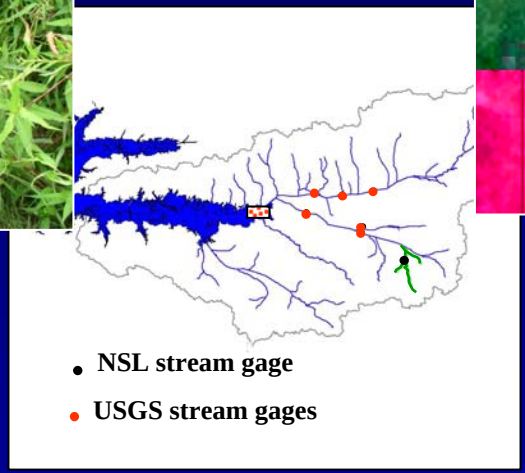
Major water quality issue is sediment.

Historically high rates of sediment yield reaching levels about twice the national average. As much as 85% of the current sediment eroded from channel boundaries may be from bank failure. Stream bank failure results in high sediment loads, destruction of aquatic habitat, and significant loss of crop land and riparian habitat.

YRW Objectives

Subobjective: 1a.

Compile the information collected to date on land use, conservation practices, and soil characteristics.



Subobjective 1b.

Compile the information collected to date on streamflow and sediment, nutrient and pesticide concentrations.

YRW Approach:

Through a Miss. State Univ. Cooperative Extension position, filled on 3/1/05 by Pamela Reid, we will compile baseline data:

Mississippi State University

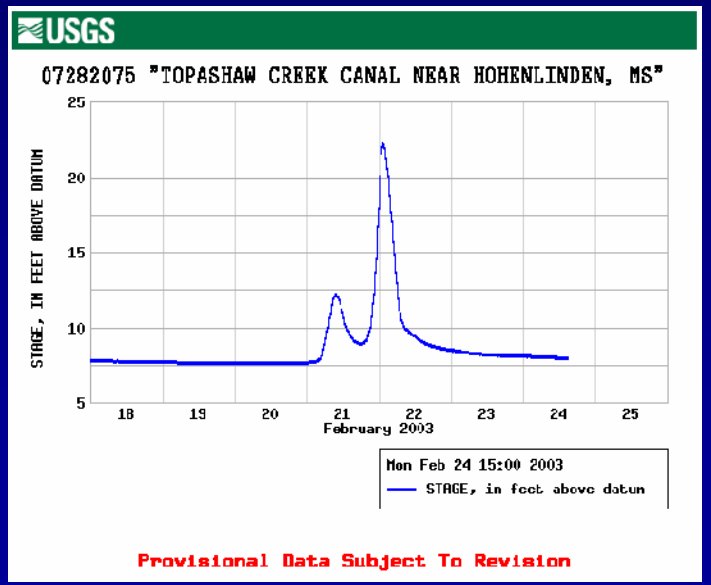
1. Identify and locate CPs.
2. Collect historical hydrologic and water quality data including: precipitation, streamflow, suspended-sediment, nutrients, and pesticide concentrations.
3. Develop a detailed land-use inventory.
4. Acquire topographic and soils data in digital format.
5. Potential for socio-economic surveys

YRW Objectives and Approach

Subobjective 2a.
Determine the effects of specific management / conservation practices and systems on contaminant and water transport processes at different scales within the YRW.

Mississippi State University

Approach:
Evaluate correlations between CPs and watershed response with historical data.

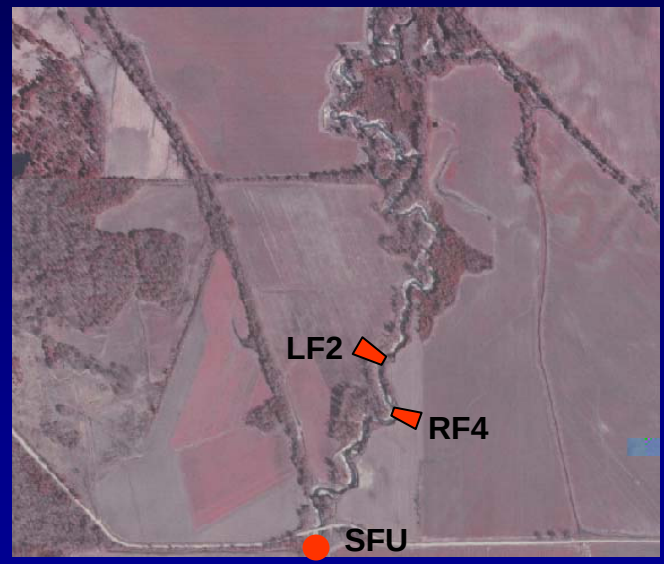


YRW Objectives and Approach

Subobjective 2b.
Determine the effectiveness of riparian buffers, and drop-pipe structures by the juxtaposing of two or more practices (eg. an in-field and an edge-of-field practice).

Baseline data on runoff and WQ samples from two fields, and one upstream location

Little Topashaw Creek



LF2 –Flume: runoff, sampling

RF4 –Flume: runoff, samplingl

SFU – upstream: streamflow, sampling

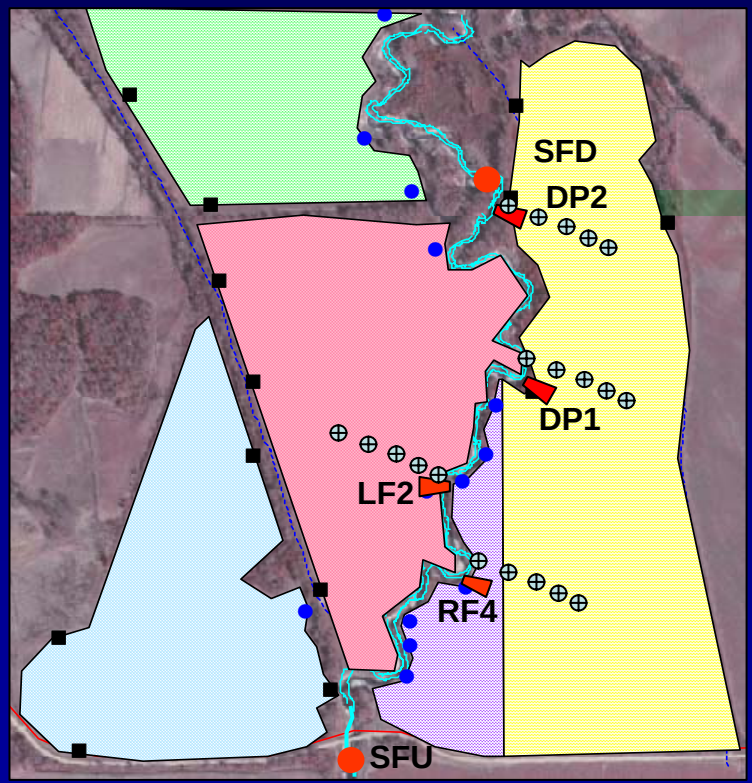
YRW Approach

Subobjective 2b.
Conduct upstream/downstream comparisons, and pre/post implementation comparisons.
Conduct groundwater response monitoring.

Expand to include a downstream, 2 edge of field drop pipes, and 4 transects of groundwater wells

Convert areas to forest buffer, NT, and CT

Little Topashaw Creek



Measurements

SFD – downstream: rainfall, streamflow, WQ, sampling

DP2 –Drop pipe: runoff, sampling, WT

DP2 –Drop pipe: runoff, sampling, WT

RF4 –Flume: runoff, sampling, WT, rainfall

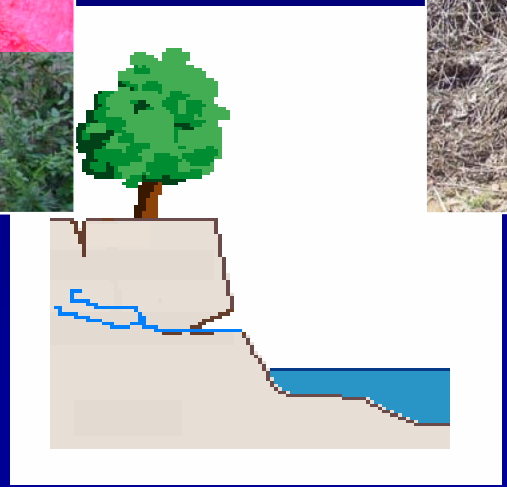
LF2 –Flume: runoff, sampling, WT

SFU – upstream: streamflow, sampling

YRW Objectives

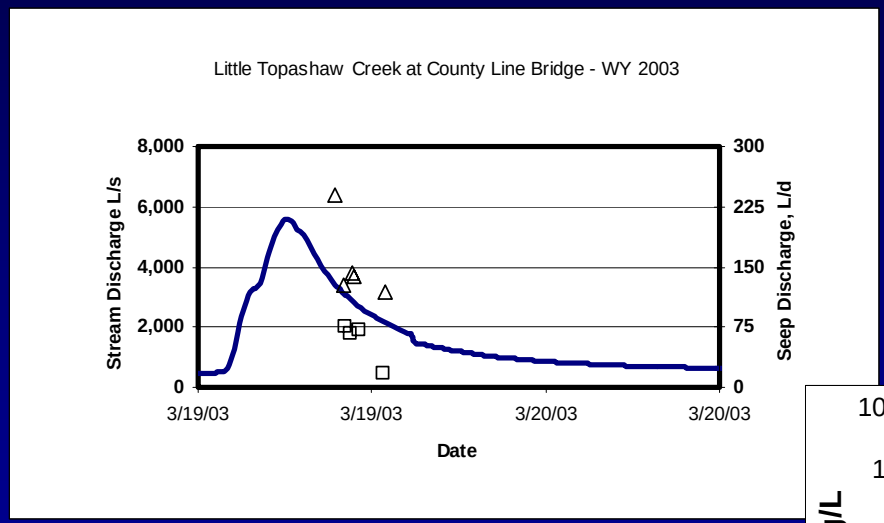
Subobjective 2c.

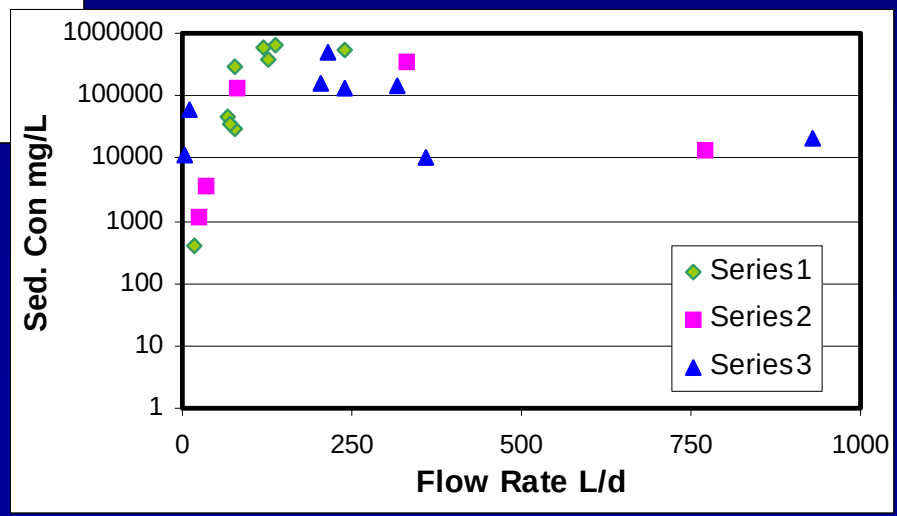
Evaluate mechanisms of seepage erosion and its contribution to stream bank failure and the impact of soil conservation practices on these processes.



YRW Objective and Approach

Subobjective 2c.
Quantify hydrologic, soil, and geotechnical characteristics at seepage erosion locations





YRW Approach

Subobjective 2c.

Conduct a series of controlled lysimeter experiments that simulate streambank conditions to quantify the hydraulic properties controlling sapping erosion.

Modify an existing model of stream bank failure to include sapping erosion.